

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Exam: Function Reflections (Practice version 25)**

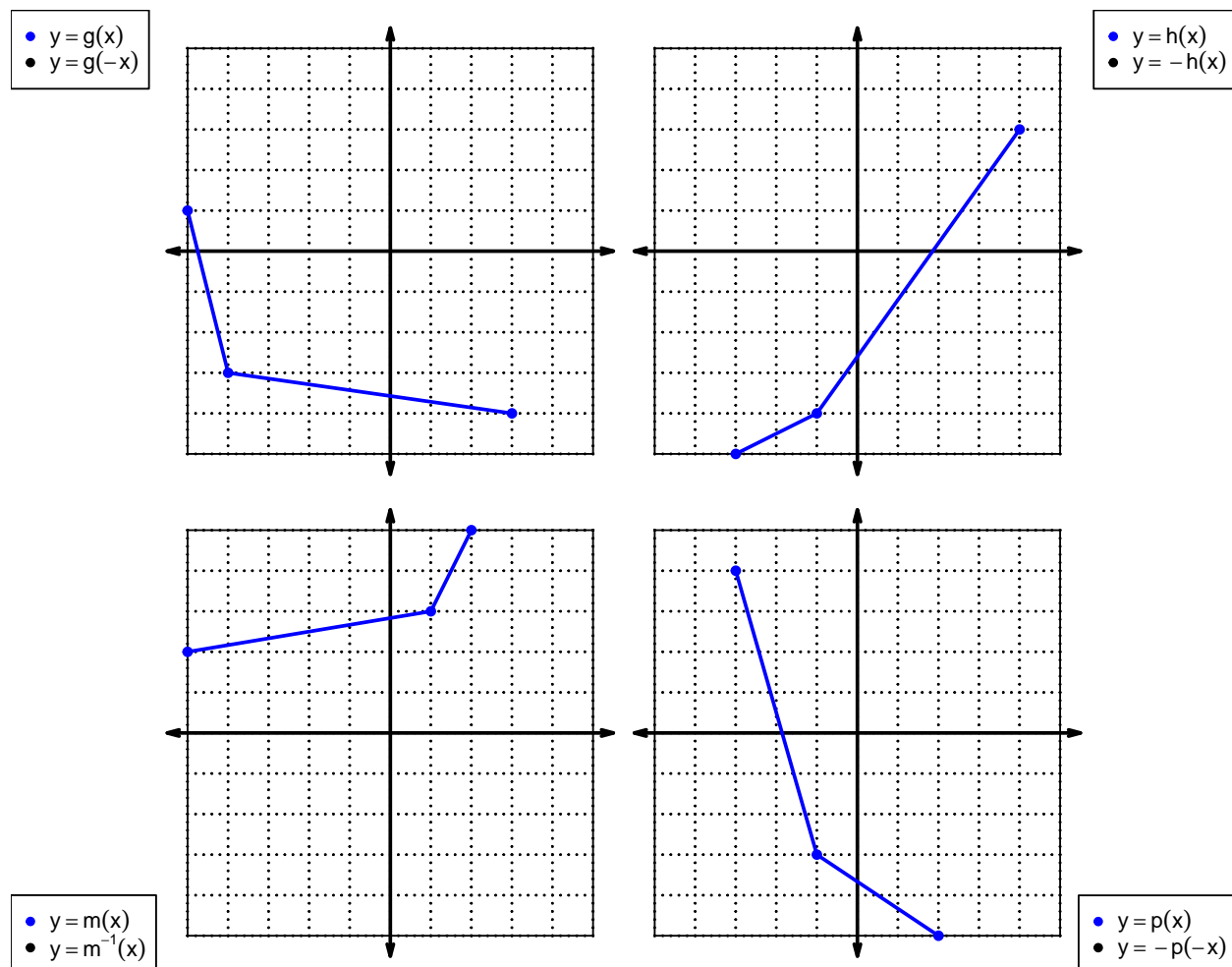
1. Let function  $f$  be defined by the polynomial below:

$$f(x) = -6x^4 + 5x^3 - 2x^2 + 7x + 8$$

Draw lines that match each function reflection with its polynomial:

**Reflections****Polynomials** $f(-x)$  ••  $-6x^4 - 5x^3 - 2x^2 - 7x + 8$  $-f(x)$  ••  $6x^4 - 5x^3 + 2x^2 - 7x - 8$  $-f(-x)$  ••  $6x^4 + 5x^3 + 2x^2 + 7x - 8$ 

2. In each  $xy$  plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The  $x$  axis is horizontal and the  $y$  axis is vertical (as typical), and the scale is equal on both axes.



## Exam: Function Reflections (Practice version 25)

For all questions on this page, the functions  $f$ ,  $g$ , and  $h$  are defined by the table below.

$x$	$f(x)$	$g(x)$	$h(x)$
1	8	2	5
2	9	4	7
3	4	9	2
4	6	3	1
5	3	5	6
6	2	1	3
7	1	7	4
8	5	6	8
9	7	8	9

3. Evaluate  $g(2)$ .

4. Evaluate  $h^{-1}(5)$ .

5. Assuming  $g$  is an **odd** function, evaluate  $g(-9)$ .

6. Assuming  $f$  is an **even** function, evaluate  $f(-3)$ .

## Exam: Function Reflections (Practice version 25)

7. A function,  $f$ , is **even** if  $f(x) = f(-x)$  for all  $x$  in the domain. A function,  $g$ , is **odd** if  $g(x) = -g(-x)$  for all  $x$  in the domain.

Let polynomial  $p$  be defined with the following equation:

$$p(x) = x^2 - 1$$

- a. Express  $p(-x)$  as a polynomial in standard form.

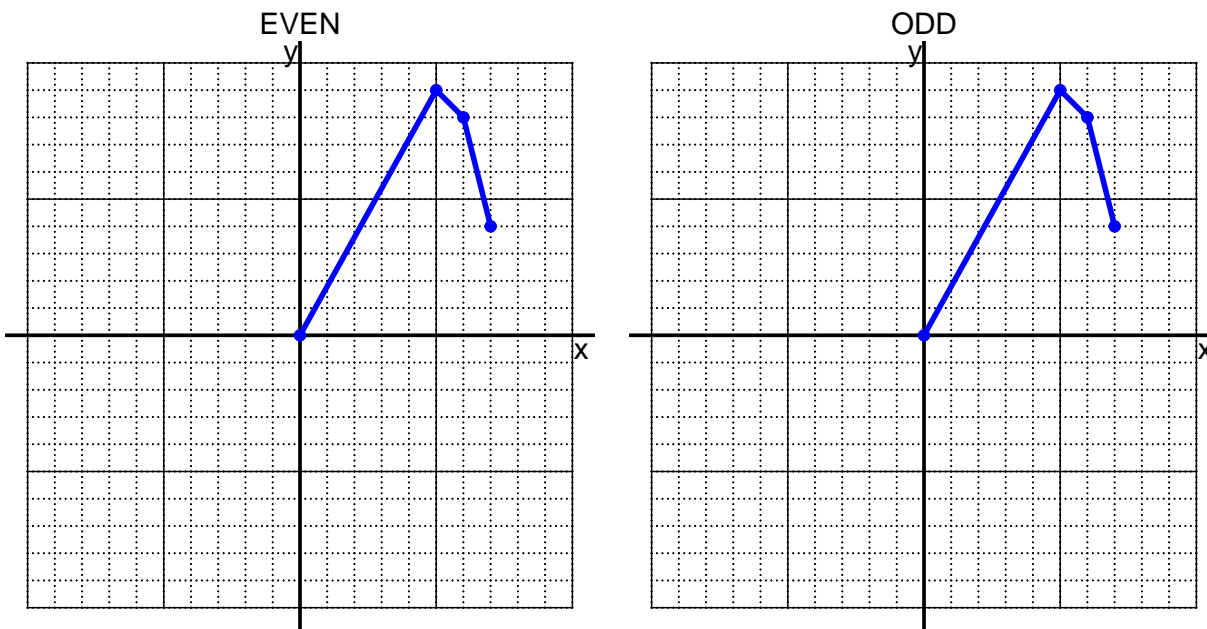
- b. Express  $-p(-x)$  as a polynomial in standard form.

- c. Is polynomial  $p$  even, odd, or neither?

- d. Explain how you know the answer to part c.

## Exam: Function Reflections (Practice version 25)

8. I have drawn half of a function. Draw the other half to make it even or odd.



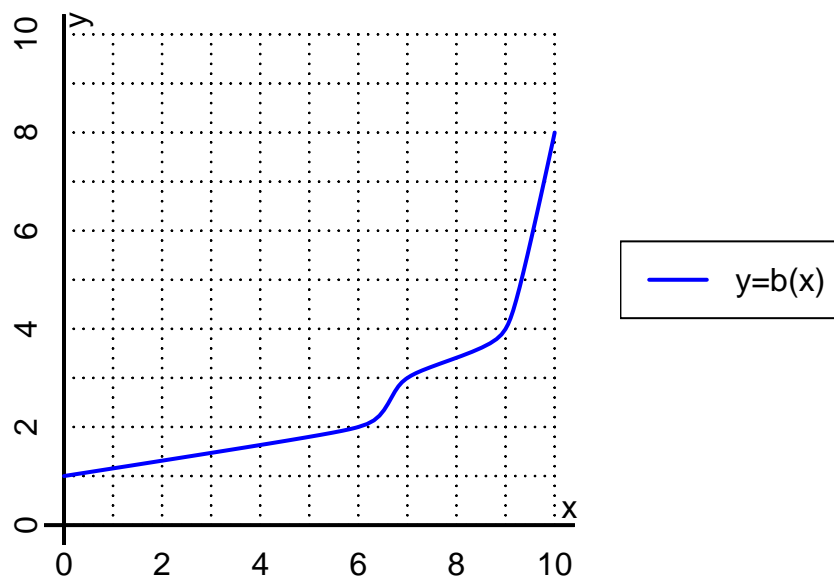
9. Let function  $f$  be defined with the equation below.

$$f(x) = 5(x + 4)$$

- a. Evaluate  $f(9)$ .
- b. Evaluate  $f^{-1}(75)$ .

## Exam: Function Reflections (Practice version 25)

10. The function  $b$  is represented by the curve  $y = b(x)$  graphed below.



a. Evaluate  $b(6)$ .

b. Evaluate  $b^{-1}(3)$ .

## Exam: Function Reflections (Practice version 25)

11. Function  $f$  is defined by the table below.

a. Complete the columns for  $-f(x)$  and  $f(-x)$  and  $-f(-x)$ .

$x$	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	-3			
-1	6			
0	0			
1	-6			
2	3			

b. Is function  $f$  even, odd, or neither?

c. How do you know the answer to part b?